

CHEMICAL ENGINEERING

2016-2017

Cr. Hrs	SEM 1	Cr. Hrs	SEM 2	Cr. Hrs	SEM 3	Cr. Hrs	SEM 4	Cr. Hrs	SEM 5	Cr. Hrs	SEM 6	Cr. Hrs	SEM 7	Cr. Hrs	SEM 8
4	MATH 1220 or 1700 Calculus I	4	MATH 1230 or 1710 Calculus II	4	MATH 2720 Multivariate Calculus	4	MATH 3740 Differential Equations	3	CHEM 4300 Physical Chemistry I (F)	3+	CHEM 3750+3760 Organic Chemistry I (L) (F,Sp,Su1)	3+	CHEM 3770+3780 Organic Chemistry II (L) (F,Sp,Su2)	2	CHEG 4810 Unit Operations Lab: Fluid Flow, Heat & Mass
	MATH 1180 ≥ C or placement		MATH 1220 or 1700 ≥ C		MATH 1230 or 1710 ≥ C		MATH 2720 ≥ C		PHYS 2050+2060 ≥ C PHYS 2070+2080 ≥ C MATH 2720 ≥ C CHEM 1120+1130 ≥ C		CHEM 1120+1130 ≥ C Recommended CHEM 3760 concurrently		CHEM 3750+3760 ≥ C Recommended CHEM 3780 concurrently		CHEG 3120 ≥ C CHEG 3300 ≥ C IEE 2610 ≥ C
3+	CHEM 1100+1110 General Chemistry I (L)	4+	PHYS 2050+2060 University Physics I (L)	4+	PHYS 2070+2080 University Physics II (L)	4	BIOS 1610 Molecular & Cellular Biology	3	CHEG 3110 Unit Operations I (L) (F)	3	CHEG 3120 Unit Operations II (L) (Sp)	3	CHEG 4100 Chemical Reaction Engineering	3	CHEG 4870 Senior Design Project
	MATH 1110 ≥ C or placement		MATH 1220 or 1700 ≥ C MATH 1230 or 1710 ≥ C or taking concurrently		PHYS 2050 ≥ C MATH 1230 or 1710 ≥ C MATH 2720 or 2300 ≥ C or taking concurrently				CHEG 2960 ≥ C		CHEG 3110 ≥ C		CHEM 4300 or CHEG 3200		CHEG 4600 ≥ C
3	CHEG 1010 Intro to Chemical Engineering (L) (F)	3+	CHEM 1120+1130 General Chemistry II (L)	1	CHEG 2810 Data Acquisition & Handling (F)	3	CHEG 2611 Environmental Engineering	3	CHEG 3200 Chemical Engineering Thermodynamics (F)	3	CHEG 3300 Mass Transfer (Sp)	3	CHEG 4600 Plant Economics & Project Design	1	CHEG 4400 Safety and Hazards Mgmt
	Co-requisite CHEM 1110 & IME 1020		CHEM 1100+1110 ≥ C		CHEG 1810 ≥ C		CHEM 1100 ≥ C MATH 1230 or 1710 ≥ C		CHEM 1120+1130 ≥ C CHEG 2960 ≥ C		CHEG 3120 ≥ C or taking concurrently		CHEG 3120 ≥ C CHEG 3300 ≥ C CHEG 3810 ≥ C		CHEG 3120 ≥ C
3	IEE 1020 Technical Communication	2	CHEG 1810 Chemical Engineering Computation (L) (Sp)	3	IEE 2610 Engineering Statistics	4	CHEG 2960 Material & Energy Balance (L) (Sp)	1	CHEG 3810 Computer Modeling and Simulation (F)	3	CHEG 3550 Bioprocess Engineering (Sp)	4	CHEG 4830 Process Control I (L)	3	APPROVED ELECTIVE FROM AN OPTION**
	English 1000 or placement		CHEG 1010 ≥ C or PAPP 1000 ≥ C MATH 1180 ≥ C		MATH 1220 or 1700 ≥ C		CHEM 1100 ≥ C PHYS 2050 ≥ C		CHEG 2960 ≥ C		BIOS 1500 ≥ C CHEG 2960 ≥ C		CHEG 3120 ≥ C PHYS 2070 ≥ C MATH 3740 ≥ C or taking concurrently		
3	GEN ED I* Fine Arts	3	GEN ED III* U.S. Cultures and Issues	4	APPROVED ELECTIVE FROM AN OPTION**	4	APPROVED ELECTIVE FROM AN OPTION**	3	ECON 2010 Microeconomics	3	GEN ED II* Humanities	3	APPROVED ELECTIVE FROM AN OPTION**	3	APPROVED ELECTIVE FROM AN OPTION**
									GEN ED VIII* Health & Well-Being					4	GEN ED IV* Other Cultures & Civilizations
	17 hours		18 hours		17 hours		19 hours		15 hours		16 hours		17 hours		16 hours
															135 total hours

NOTE: Prerequisite courses are shown in smaller print.

* See your academic advisor for general education requirements.

** See page 2 and 3 for approved elective from an option courses.

40 Cr. Pre-Engineering Req.

69 Cr. CHEG Req.

9 Cr. Gen Ed Req.

17 Cr. Elective Req.

A 'C' or better is required for admission to upper level CEAS courses

CHEMICAL ENGINEERING APPROVED ELECTIVES BASED ON OPTION

Cr. Hrs	Elective	Cr. Hrs	Elective	Cr. Hrs	Elective	Cr. Hrs	Elective	Cr. Hrs	Elective	Cr. Hrs	Elective
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PULP AND PAPER OPTION

1	PAPR 1040 Introduction to Paper Industry and Tech	4	PAPR 2040 Stock preparation and Papermaking	4	PAPR 2550 Paper Physics Fundamentals	4	PAPR 3030 Pulping and Bleaching	3	PAPR 4300 Surface and Wet End Science	1	CHEG 3100 Work Experience/Co- op	1 to 3	CHEG 5950 Topics in Chem Engineering		PAPR 2420 Coating
	Co-requisite CHEM 1000+1110		PAPR 1000 or PAPR 1040		PAPR 2040 IEE 2610** or STAT 3640**		CHEG 2960 ≥ C CHEM 3750 ≥ C		CHEM 3750+3760		Junior Standing Departmental consent				PAPR 2040 or PAPR 2550 or GPS 2150
					**may be taken concurrently			Select 17 hours from those courses listed.							

ENERGY MANAGEMENT OPTION

3	CHEG 4440* Energy Management Engineering	4	PAPR 4840* Process Control II	3	ECE 2100 Circuit Analysis	3	ECE 2110 Machines and Electronic Circuits	3	EDMM 1420 Engineering Graphics	1 to 3	CHEG 5950 Topics in Chem Engineering	1	CHEG 3100 Work Experience/Co- op		
	CHEG 3120 and 3200 or ME 4310 and 4320		CHEG 4830		MATH 1230 or 1710 ≥ C PHYS 2070 ≥ C or taking concurrently		ECE 2100						Junior Standing Departmental consent		
	(ME 2320 & 3560) or (CHEG 3110 & 3200)		ME 4310 or CHEG 3120 ME 4320		ME 3350 or (CHEG 2810 and IME 2610) ME 4310 or CHEG 3120			* CHEG 4440 and PAPR 4840 are required courses. Select the balance of 8 hours from the remaining courses.							

CHEMICAL ENGINEERING APPROVED ELECTIVES BASED ON OPTION (CONT'D)

Cr. Hrs	Elective	Cr. Hrs	Elective	Cr. Hrs	Elective	Cr. Hrs	Elective	Cr. Hrs	Elective
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POLLUTION PREVENTION OPTION

1	CHEG 3100 Work Experience/Co-op	3	PAPR 3531 Wastewater Treatment Systems	3	ECON 3190 - Environmental Economics	4	BIOS 2320 - Microbiology and Infectious Diseases	3+1	CHEM 2250+2260 - Quantitative Analysis (L)	3	CHEG 3611* Advanced Topics in Environmental Engineering	3	CHEG 4440* - Energy Management Engineering	3	CHEG 4611* - Sustainable Chemical Process Development
	Junior Standing		CHEG 2610 ≥ C or CHEG 2611 ≥ C		EECON 2010				CHEM 1120 and 1130 ≥ C and		CHEG 2611		(CHEG 3120 and 3200) or (ME 4310 and ME 4320)		CHEG 2611 and CHEG 2960
	Departmental consent														
3+1	CHEM 3550+3560 Introductory Biochemistry (L)	3	IEE 3100 - Engineering Economy	1 to 3	CHEG 5950 Topics in Chem Engineering										
	(CHEM 3700 and CHEM 3710) or (CHEM 3770 and 3780)		MATH 1230 ≥ C and junior standing												
									*CHEG 3611, CHEG 4440 and CHEG 4611 are required. Select balance of 8 credit hours from remaining courses						

LIFE SCIENCES OPTION

4	BIOS 1620 Ecology and Evolution	4	BIOS 2110 Human Anatomy	4	BIOS 2320 Microbiology and Infectious Diseases	4	BIOS 2400 Human Physiology	3	BIOS 2500 Genetics	5	BIOS 3500 Human Physiology for Majors	3	BIOS 5310 Biology of Aging	3	BIOS 5610 Pharmacology
	BIOS 1500		BIOS 1600 or BIOS 1120				BIOS 1120 or BIOS 1610 or BIOS 1510 or BIOS 1910		CHEM 1120		BIOS 2500		Junior Standing		Junior Standing
							BIOS 2110 recommended		(BIOS 1500 or BIOS 1610)		CHEM 3750+3760 or CHEM 3700+3710		12 credits in Biology including BIOS 2400 or BIOS 3500		12 credits in Biology including BIOS 3500, CHEM 3750 and CHEM 3760
									(BIOS 1510 or BIOS 1620) or taking concurrently		Junior Standing		BIOS 2110 recommended		
3	CHEG 5950 Topics in Chem. Engineering	1	CHP 3100 Work Experience/ Co-op	3	CHEM 3550 Introductory Biochemistry										
	Departmental approval prior to registration		Junior Standing		(CHEM 3770 and 3710) or (CHEM 3700 and 3780)										
			Departmental Consent						Select 17 hours including one course at the 3000 or greater level other than CHEG 3100.						